

Psittacosis

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THE DISEASE we know today as psittacosis was first described in Switzerland in 1879 as pneumotyphus. Early cases of this disease were attributed to association with parrots or parrot-like species, and the etiological agent was believed to be one of the *Salmonella* group. It was not until the pandemic of 1929-30 that the viral nature of the infection was established and the causative virus isolated and identified.

During the pandemic which started in South America in 1929 and rapidly spread to Europe and North America, the Public Health Service invoked stringent foreign quarantine regulations prohibiting the importation of psittacine birds. Few modifications have been made in these regulations during the past 25 years. Regulations controlling the interstate movement of psittacine birds were promulgated several years after the pandemic. During the late 1930's and 1940's these foreign and domestic control regulations were effective in reducing the incidence of human psittacosis in the United States to a low level of 20 to 30 cases a year.

Investigations during the period 1935 to 1950 revealed that psittacosis is a ubiquitous disease. Infection was recognized in more than 70 species of wild and domestic birds and mammals. The human case fatality rate, which had been 20 percent during the pandemic, dropped to less than 1 percent with the use of the broad spectrum antibiotics. These factors and the low number of reported human cases of the disease were considered by the board appointed by the Surgeon General of the Public Health Service in 1950 to review the Interstate Quarantine Regulations. Since the infection had been shown to be widespread in nature and of

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minor importance as the cause of human morbidity, it was decided to revise the Interstate Quarantine Regulations to permit shipment of psittacine birds except into those areas where prohibited by State law. This revision in the regulations became effective late in 1951.

The lifting of the restriction on shipment resulted in an unanticipated demand for these birds, particularly parakeets, as household pets. This demand, which exceeded the available supply, activated the establishment of many backyard and basement aviaries. In a number of instances cull birds were used as breeding stock, and the husbandry practices tended to propagate rather than control disease.

The annual incidence of human psittacosis rose from 25-30 cases during the years 1945-50 to 135 in 1952, 169 in 1953, 563 in 1954, and 278 in 1955. The National Office of Vital Statistics reports that during the 23-week period January 1 to June 9, 1956, there were 205 human cases compared with 155 during the same period in 1955. The 205 cases during the first 5 months of 1956 do not include the undetermined number of cases in Oregon which were attributed to association with diseased turkeys.

The term "ornithosis" has been proposed for this infection when it occurs in species of birds other than the psittacines. In human medicine the term "psittacosis" is used to describe infections with this group of viruses without regard to the species of birds or mammals from which it may have been derived.

Although ornithosis has been recognized in chickens, human infections traced to these fowl have occurred only sporadically, and major outbreaks have not been seen. The largest outbreak in which chickens were believed to be the source occurred in 1954 in a rural area in northwestern Illinois. In this episode 37 persons became ill, and serologic evidence revealed psittacosis. No virus was isolated from any of the humans or chickens in the area.

The disease in turkeys and in humans associated with turkey processing was first recognized in Texas in 1948. Five outbreaks of psittacosis with at least 96 cases and 7 deaths occurred among employees of two Texas poultry-dressing establishments in 1948, 1951, 1952, and 1953. All the patients had been dressing turkeys for the Thanksgiving or Christmas market or at

the end of the egg-laying season. The illness varied in severity from minor influenza-like attacks to severe toxemias ending in death. In 1954, 200 cases of psittacosis were reported among persons working in turkey-processing plants in Texas, and one person died. All of these individuals had taken part in the actual processing of the birds.

A very toxic strain of psittacosis virus was recovered from turkeys in Texas in 1952 and again in 1954. Late in 1954, five human cases occurred in a small turkey-dressing establishment in New Jersey. The New Jersey virus is very similar to that seen in Texas. Epizootiological investigations have not clearly established the source of the infection in turkeys. Ecologic studies of migratory birds have given equivocal results. The virus isolated in Texas is very similar to that isolated from waterfowl on the coast of Louisiana, but a connecting link has not been established.

In September 1955, Iowa reported three human cases of psittacosis among employees of a turkey-processing plant. Serologic studies of the turkeys in this area were negative. However, too few serum specimens were tested for significant results. Serologic specimens collected from turkeys in other areas in the State were positive.

Early in 1955, a psittacosis virus strain was recovered from turkeys in Michigan. A similar strain was recognized in turkeys in California late that year. In each instance there were positive serologic findings. Pathological changes were seen in the birds at post-mortem examination, but no human cases were reported in association with these birds. Virus strains isolated from turkeys in both of these States were of low pathogenicity for mice.

The most recent outbreak of ornithosis in domestic fowl occurred in Oregon in March 1956. Infection was recognized at two turkey-breeding farms near Portland. To date some 50 to 60 human cases have been attributed to contact with these diseased turkeys. Two observations made during the Oregon outbreak which had not been seen in either the New Jersey or Texas investigations were the occurrence of cases among farm workers who had only limited contact with the live birds and the extreme infectiousness of aerosols which can be

generated during rendering plant operations. It was found that aerosols in a rendering plant which ground carcasses of diseased birds infected workmen far removed from the actual operation.

Epidemiological and epizootiological investigations of the Portland outbreak are being made. Deaths had occurred in both of these turkey flocks for several months before reaching epizootic levels. Initially, the losses were attributed to bacterial infections, and the flocks were treated with various biological and chemotherapeutic preparations. It was not until an employee on one of the farms developed psittacosis that the viral nature of the infection in the turkeys was suspected.

Ecologic and environmental studies to date have not furnished clues to the factors that either start or support an epizootic in bird populations. Virulent strains of turkey virus have been recovered in areas having widely different topographic and climatic conditions. Avirulent strains have been recovered in areas of epizootic infections. Until we have a broader understanding of the behavior of these viruses, efforts will have to be directed toward control rather than prevention of outbreaks.

Once a disease of animals moves into the human population, it assumes public health significance, and the importance of the disease is determined by the morbidity and mortality it causes, the rapidity with which it moves in a population, and the size of the group at risk. Psittacosis, once an obscure and rare disease thought to be contracted only by persons associated with parrots, has been diagnosed in people who handle other species of birds. Several species of mammals have been shown to be infected and may be the source of human infection.

Although the number of human cases of psittacosis during the period 1951-55 has shown a marked increase over the 1945-50 period, this should not cause alarm. The popularity of parakeets as household pets has resulted in a manifold increase in the number of these birds (estimated increase of from 2 to 12 million) with only a slight percentage increase in the number of cases attributed to this source. Occupational psittacosis may not be increasing but rather may be identified more often as the re-

sult of improved methods of diagnosing the disease. Public health workers and clinicians should be on the alert for occupational psittacosis because it may be an unrecognized source of respiratory illness. Current research shows

promise of feasible control measures for this disease in both parakeets and turkeys. Prevention of psittacosis in human beings depends on control of psittacosis and ornithosis in the animal population.

Statement on the Future Need for Physicians

The changing nature of our industrial civilization, the increasing population, and the expanding knowledge revealed by research have and will continue to have a profound effect on our educational programs. It is a responsibility of the universities and of the professions to recognize and meet the needs of society. There is no area in which this obligation is greater than in the field of the health sciences.

Within the next decade, the health care of the American people based on greater knowledge through research will require increasing numbers of all types of personnel including physicians. Further, many more young men and women will be seeking higher education and training in one of the health professions.

In the 10-year period (1945-46 to 1955-56) since the end of World War II, the number of medical schools has increased from 77 to 82, the number of entering freshmen from 6,060 to 7,686, and the number of graduates from 5,655 to 6,485. Two new medical schools admitted a freshman class for the first time in the fall of 1956. At least one other school is in process of formation and will admit its first class in 1959.

Although the Association of American Medical Colleges is proud of this record of the medical schools in responding to the needs of the postwar world, it also believes that more remains to be done. Medical education should be expanded further without impairment in the high quality which has been carefully built up in the United States since 1910. It is possible that some existing schools can, with new facilities and larger facilities, accept additional students, but the need will not be met completely in this manner. The larger contribution in number of students will come,

as it has in the past, by the establishment of new schools.

On the other hand many schools have already expanded their enrollment without increase or improvement of physical plant. The 84th Congress authorized construction of research facilities, but as was pointed out by the President, this met only a part of the need to maintain the present quality of teaching for the present number of students.

The Association of American Medical Colleges urges its member institutions to survey their potentialities and capacities in the light of the future need for health personnel, and urges universities in large urban centers now without a medical school to give serious consideration to the establishment of one.

The latent period between the determination to form a medical school and service of the graduates to the people is 8 to 14 years: 2 to 4 years to plan the program, construct the buildings, and secure a faculty; 4 years for medical education; and 2 to 6 years for hospital training as an intern and resident. Hence, if we are to meet the problem, it should be borne in mind that plans made in 1956 are not for next year or the year after, but for the needs of the Nation in 1964 to 1970.

A program of expansion will require large sums of money, both for capital expenditures and for operating expense. The Association of American Medical Colleges is dedicated to the preservation of joint and coordinated support of medical education from private and government sources and believes the American people are willing and able to back ventures which will mean better health and a happier life.

—By the Association of American Medical Colleges, adopted at the 67th annual meeting in Colorado Springs, November 1956.